POLICY AND PLANNING

Five Year Forest and Range Resource Program 1991-1996

Province of
British Columbia
Ministry
of Forests

Five Year Forest and Range Resource Program 1991-1996

Submitted to the Legislative Assembly on May 30, 1991,
in accordance with the *Ministry of Forests Act,* section 9

Province of British Columbia

Ministry of Forests

91-05661/

Minister's message

Forests provide British Columbians with a wealth of benefits.

Our forests are subject to increasing demands for many kinds of benefits. We want a sustainable base for a variety of industries: grazing areas for livestock, timber for the forest products industry and opportunities for tourism. We also want clean water, clean air, fish and wildlife habitat, wilderness, recreation areas and parks.

To ensure stewardship of our forests, and sustainable development of their many resources, we must balance the many demands with the forests' capacity to support these demands. The areas from which timber and forage are harvested must be managed carefully. We also need to manage natural forests to ensure that their values are protected from catastrophes, such as wildfire, and from accidental degradation, for example through recreational overuse.

More and more interest groups are demanding a say in how our forests are managed. Some groups are based in communities directly dependent on nearby forests. Others are in metropolitan and even international centres. These groups have widely divergent views on forest management. A key challenge for the Ministry of Forests is to reflect and balance these differing views in its forest and range resource program.

Our public forest and range resources require significant investments in planning, inventory, silviculture, research and protection, to ensure that the demands of current and future generations are met. This Five Year Forest and Range Resource Program describes how and why these investments will be made.

These public investments also provide a springboard for private sector investments which generate much of the wealth -- and public revenue -- from our forest and range resources. These revenues help provide British Columbians with a high level of social and community services.

The social and economic implications of forest management decisions are broad in scope. Choices must therefore be made carefully. Forest and range resource management must provide for today's needs, reflect sensitivity to society's diverse sectors, and ensure the ability of future generations to meet their needs.

Claude Richmond
Minister of Forests

Contents

Summary 1

Key initiatives 2

A Forest Renewal Plan 2
Canada - British Columbia
Forest Resource Development Agreement (1991-1995): A partnership 3
Range management 3
Old Growth Strategy Project 4
Parks and Wilderness for the '90s 4

Programs of the Ministry of Forests 5

Management services program 5
Integrated resource management program 5
Inventory program 7
Harvesting program 7
Small business forest enterprise program 8
Silviculture program 9
Research program 12
Protection program 12
Fire suppression program 13

Appendices 14

Role of the private sector 14
Notes on linkages to other reports 14
Ministry organization 16

Summary

This report describes the Ministry of Forests' initiatives and programs for the next five years, from April 1, 1991 to March 31, 1996.

The Ministry of Forests' mandate is to manage and protect the province's forest, range and forest recreation resources for the maximum benefit of all British Columbians.

Sustainable development of these resources is an underlying principle of this five year program. The Ministry of Forests aims to help British Columbians meet today's needs while maintaining options for future generations to meet theirs. This involves many difficult decisions on complex matters. To ensure balanced decision-making, the ministry will expand its already extensive consultation with other agencies and the public.

Several key initiatives contribute to sustainable development of the province's forest and range resources. All of the initiatives involve extensive consultation. They are:

- a $1.4 billion Forest Renewal Plan;
- a $200 million cooperative agreement with the federal government, that forms part of the Forest Renewal Plan;
- a strategy for managing range resources;
- a strategy for managing the province's old growth forest ecosystems; and,
- a framework for decisions regarding designation of new parks and wilderness areas.

These initiatives are described in the first part of this report. They now form part of the ministry's regular programs, which are described in the next part of the report. The role of the private sector in assisting the ministry with these programs is also described in an appendix.

The Ministry of Forests' forecast expenditure for 1991/92 is $622 million.

Total direct revenues from the forests are forecast at $642 million for 1991/92. The ministry's forest and range management also maintains the natural resources from which the forest, ranching and tourism industries generate additional corporate and personal tax revenues. These direct and indirect revenues help pay for the social services provided to all British Columbians.

A Forest Renewal Plan

Silviculture, the art and science of growing trees to meet the owners' objectives, is moving into a new phase in British Columbia.

Since the 1930s, silviculture efforts have been concentrated on planting trees on areas denuded by harvesting and wildfires. Today, all currently harvested and burned lands are promptly reforested.

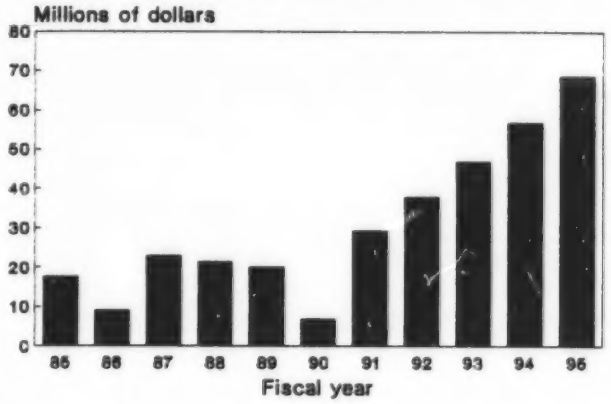
A total of $1.4 billion will be invested over the next five years, under a greatly expanded Forest Renewal Plan directed toward achieving the objectives listed below:

- Tending of young forests will be given greater emphasis. Treatments such as spacing , fertilizing and pruning (known as incremental silviculture), will enhance the forests' timber growth, wood quality and health; modify habitats to benefit wildlife and increase biological diversity; and, improve aesthetics and recreation potential. As shown in Graph 1, expenditures for incremental silviculture will increase dramatically.

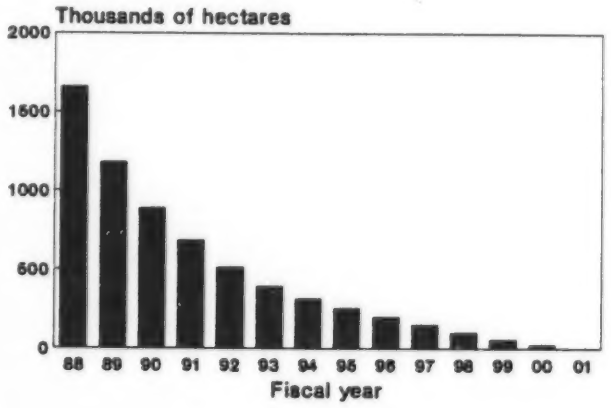
- Most of the remaining not-satisfactorily-restocked (NSR) forest lands that were harvested or burned before 1988 will be reforested, as shown in Graph 2. All remaining disturbed forest lands that are viable to treat will be reforested by the year 2000.

- Enforcement of forest companies' legal obligations to reforest areas of current timber harvests will ensure that no new NSR areas accumulate. To achieve this, the ministry will dramatically increase the number of basic silviculture performance audits, as shown in Graph 3. The timing of the increase in audits reflects, in part, the permitted regeneration delay of three years, following the decision in late 1987 to shift the responsibility for reforestation to the forest industry.

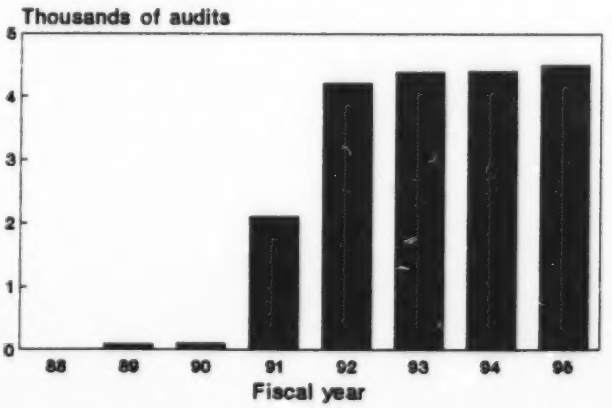
Graph 1: INCREMENTAL SILVICULTURE
EXPENDITURES (1985/86 to 1995/96)



Graph 2: ELIMINATION OF NSR
(1988/89 to 2001/02)



Graph 3: SILVICULTURE AUDITS
(1988/89 to 1995/96)



- Research on biodiversity, silvicultural practices, genetic improvement and forest-growth dynamics will provide vital information for the Forest Renewal Plan and for forest management in the future.

- An expanded inventory of young forests will provide vital data, including mapping, monitoring and growth analyses for these rapidly changing forests.

- The expected benefits of investments in silvicultural treatments will be evaluated, so that foresters can choose the investments with the best financial, biological and aesthetic results.

This new phase of silviculture sets ambitious goals. The Ministry of Forests will rely on the cooperation of other ministries, the private sector and the public to ensure realization of the goals. Successful implementation of the Forest Renewal Plan will provide more current and future jobs, greater wealth, a healthier environment and better options for future generations.

Canada - British Columbia Forest Resource Development Agreement (1991-1995): A partnership

The federal and provincial forest ministers signed a new Forest Resource Development Agreement (known as FRDA II) on April 30, 1991. Each government will provide half of the $200 million total to be spent over four years under the agreement. The agreement and the funds under it are a part of the $1.4 billion Forest Renewal Plan, described above.

A primary objective of earlier agreements, including the first FRDA which was in effect from 1985 to 1990, was to reforest the backlog of not-satisfactorily-restocked (NSR) forest areas harvested or burned before 1982. During the first FRDA, the backlog of NSR lands denuded before 1982 was reduced from 738 000 ha to 436 000 ha. This task will be continued under the Forest Renewal Plan described on page 2, while the FRDA II will concentrate on enhancing forest growth and value.

The new FRDA II will maintain the cooperative relationship with the federal government and address a broader scope of issues:

- The overall objective is to promote the sustainable development of the forest resources of British Columbia.

- Activities will focus on incremental silviculture, forestry research and technology transfer.

- The agreement will also identify opportunities for new products and markets, increase public awareness, address integrated resource management and improve forest management on private, municipal, Indian and federal woodlands.

Range management

The province's rangelands serve a wide variety of interests, from ranching and tourism (guides, packers and trail ride outfitters) to wildlife and general recreation. With increasing demands placed on the range resource, a review of how to best serve all parties became necessary.

A five year strategic plan for the range subprogram has been developed and circulated to various agencies and public sector interest groups for review and comment. The strategic plan clarifies the mission and philosophy of the range subprogram with respect to the stewardship and management of provincial range resources. The plan also outlines a general strategy for action, based on the recommendations emerging from the recently completed Range Program Review.

Old Growth Strategy Project

The Ministry of Forests is involved in a cooperative project to develop a strategy for managing the province's old growth forest ecosystems.

The project involves representatives from a wide variety of parties interested in old growth issues, including the forest industry, government agencies, diverse public groups and academics. The project is coordinated by an inter-ministry management committee and is organized into various working teams.

In 1991, a draft strategy will be presented to government. It is anticipated that it will be made available for public review and comment. Subsequently, beginning in 1991, implementation of the approved strategy will proceed. The strategy will include information and recommendations on:

- an inventory of existing old growth;
- development of a provincial framework for identification and preservation of representative old growth areas;
- scientific, economic and social research to improve understanding of old growth ecosystems, their values to society and their management; and,
- development of forest management practices to maintain or create old growth attributes in forests used for timber harvests, along with practical guidelines for implementing these practices.

The Old Growth Strategy Project will be integrated with other, concurrent land use planning initiatives such as Parks and Wilderness for the '90s.

Parks and Wilderness for the '90s

After release of the Ministry of Forests' wilderness policy in December, 1989 and the Ministry of Parks' Parks Plan '90 in June, 1990, the two ministries cooperated on a public review of British Columbia's present and proposed systems of parks and wilderness areas, called Parks and Wilderness for the '90s.

This initiative was designed to open public debate on, and shape the future of, the province's parks and wilderness areas. After an analysis of public input, the ministries will make recommendations to cabinet on how to proceed with park and wilderness studies.

These studies will be open to and involve the public. Each study will identify the issues and assess all resource values for an area, and make recommendations to Cabinet regarding possible park or wilderness designation.

The Ministry of Forests organizes its activities under nine programs.

Management services program

In 1991/92, ministry staff will increase from some 3,400 to over 3,900 people in six regional offices, 43 district offices and 19 branches in headquarters. The degree of decentralization, combined with the variety of ongoing tasks and new initiatives, makes the provision of executive direction and support services complex.

The management services program provides the other programs with executive direction, policy analysis and basic infrastructure. The program also provides grants in support of better forest management.

At headquarters in Victoria, the program includes the minister's office, senior management and the activities of the Audit Services, Financial Services, Human Resources, Information Systems, Land Use Policy, Public Affairs, Strategic Planning and Analysis, and Technical and Administrative Services Branches, plus Legal Services. At the regional and district offices, it includes senior management and the activities of administrative and technical support personnel.

In 1991/92, computerization of the district offices will continue with the installation of networks of personal computers. This equipment will be critical for management of the Forest Renewal Plan.

Revenue management continues to be a high priority. Recently introduced policies to ensure fair, complete and timely collection of revenues will be supplemented with a variety of other measures to improve systems for tenure administration, timber scaling, billing and accounts receivable. This will significantly improve the ministry's revenue management in future years.

Forecast expenditure for 1991/92 is $118 million.

Integrated resource management program

The purpose of the integrated resource management program is to ensure that all resource values are considered in the ministry's management of British Columbia's forests and rangelands, as required under section 4(c) of the *Ministry of Forests Act*.

The program includes the activities of the Range, Recreation and Integrated Resources Branches in Victoria, and the range, recreation and resource planning personnel in the regional and district offices.

Forecast expenditure in 1991/92 is $21 million.

The integrated resource management program consists of three subprograms: range, recreation and resource planning.

Range

The range subprogram provides stewardship, conservation, rehabilitation and enhancement of Crown provincial rangeland, 80 percent of which comprises land also managed for the production of timber and other products.

Use of the range resource by livestock, wild ungulates, guide/outfitters, packers and others is integrated to minimize conflicts. The range subprogram administers range tenures and recovers revenues from the ranching industry for the use of one million animal unit months (AUMs) of forage.

New initiatives, based on a five year Range Program Strategic Plan, were begun in 1990/91 to improve rangeland stewardship. Implementation will continue in 1991/92 and beyond. Major activities include increased planning, inventory, monitoring of range condition, research, weed control and forage enhancement. Investments will also be made in

maintaining and building fences, water developments and other facilities, to achieve efficient resource use.

Recreation

The recreation subprogram has a twofold role of managing recreation resources and managing their use:

- To manage recreation resources, including protection of present and future recreation values such as scenic landscapes, wilderness, and cultural and heritage landmarks.

- To manage use of these resources by providing safe, sanitary, socially acceptable and environmentally sound recreation facilities.

The recreation subprogram's goals for the next five years are to:

- develop provincial and regional landscape management guidelines;

- manage wilderness, including Parks and Wilderness for the '90s, described on page 4;

- maintain a network of sites and trails that meets the public's needs;

- manage dispersed recreation use throughout provincial forests;

- complete the recreation inventory, update it on a five year basis, and load it onto the ministry's forest inventory database;

- meet the public's need for information on recreation opportunities, forest etiquette and safe use of forest lands;

- further develop an interpretive forest program;

- complete recreation corridor planning studies under the Rivers and Trails Program (formerly the Recreation Corridor Program); and,

- study recreation values, demand for recreation opportunities, landscape preferences, and visitors' satisfaction with the ministry's recreation sites and trails.

Resource planning

The objective of the resource planning subprogram is to ensure that all resource values, potential forest uses and potential land uses are fully considered and integrated in forest and range resource management plans.

Plans are prepared in cooperation with other provincial ministries, and with the involvement of resource users and the public. New approaches to planning and new computer-based tools will be developed and implemented to ensure that the subprogram's objectives are met.

The resource planning subprogram includes the preparation of broad resource management plans at the forest district or timber supply area level. It also includes the review of management plans prepared by the forest industry for tree farm licences. More detailed resource use plans are also prepared at the watershed level.

An important function of the subprogram is to provide detailed timber supply analyses that assist the chief forester in the determination of allowable annual cuts (AACs). This function will be well supported, so that AACs can be reviewed regularly, using the best and most current information available.

Another important function of the subprogram is to assist district and regional staff in resolving resource management issues that result from conflicting interests in different resources. Many issues are resolved with careful planning and public involvement at local levels.

Inventory program

The inventory program maintains a comprehensive inventory of British Columbia's timber resources and combines it with range and recreation inventories from the integrated resource management program. It provides computerized maps and a geo-referenced database to resource managers throughout the ministry, outside agencies and the private sector.

Inventory program goals for the next five years are to:

- re-inventory 50 percent of the province's forests (over 3000 maps);
- update, on a two-year cycle, inventories of the whole province for timber harvests and wildfire areas;
- establish 1,300 samples annually for growth and yield studies; and,
- reconcile the annual timber harvests with the areas and volumes of the timber inventory.

The program includes the activities of the Inventory Branch in Victoria and the inventory personnel in the regions and districts. The private sector is used extensively for surveys, data compilation and mapping.

In addition to the regular inventory program, the Forest Renewal Plan will provide $80 million over five years for enhancing the quality of the second growth inventory and developing a Provincial Forest Resources Inventory Committee. These will support attainment of silvicultural goals.

Forecast expenditure for 1991/92 is $12 million for the regular inventory program, plus $13 million for inventory work under the Forest Renewal Plan.

Harvesting program

The harvesting program includes the disposition of rights to Crown timber and the administration of timber harvests, under a variety of forest tenures; the collection of revenues for Crown timber; and, the administration of the forest service road network.

On March 31, 1991, the allowable annual cut (AAC) on Crown and regulated private forest lands was approximately 75 million m^3. About 88 percent of this volume is committed to major licences administered under the harvesting program. The balance is administered under the small business forest enterprise program, described on the next page.

The amount paid for Crown timber is determined in two steps:

- The stumpage appraisal system determines stumpage rates for thousands of timber stands, based on the comparative value of timber in those stands.
- The revenue management system determines timber volumes harvested, applies the stumpage rates, and bills and collects stumpage revenues.

Policy and technical aspects of the stumpage appraisal system are frequently reviewed by ministry, industry and other appraisal experts. To determine more equitable stumpage rates, they continue to develop better estimates of comparative timber values, reflecting both product prices and costs. Timber harvesting costs on the coast and in the interior will be examined in the near future, followed by consideration of other interior appraisal factors.

The ministry will continue its emphasis on effective revenue management through implementation of a revenue risk management plan. This will provide staff training and development of new policies and

administrative procedures for controlling the marking, transportation and scaling of Crown timber. Technical reviews in progress are focussing on scaling and scale data transmission practices, procedures and technology.

Over the next five years, the ministry will also increase its field monitoring of licensees' timber harvesting activities.

The harvesting program includes the activities of the Economics and Valuation, Industry Development, Valuation Administration, and Timber Harvesting Branches in Victoria. At each of the regional offices, it includes the activities of timber administration, engineering and valuation personnel. At the district level, the program includes the activities of personnel for timber administration, scaling and engineering.

Forecast expenditure for 1991/92 is $62 million. Forecast revenue is $452 million from timber sales plus $54 million from other direct forest revenues.

Small business forest enterprise program

The small business forest enterprise program (SBFEP) sells Crown timber to firms and individuals throughout the province. The program has four principle objectives:

- Opportunities: The program provides opportunities for individuals and firms in the forest industry to acquire timber for their operations, and for individuals and firms to enter the industry and establish new businesses.

- Diversification and employment: Timber will be sold to promote and stimulate the production of specialty and high value forest products, and to generate employment. The establishment of new sawmills will not be encouraged.

- Competition and profit: The marketing of timber through a competitive process ensures that the most efficient firms are awarded timber sales and the province receives a fair rate of return for the forest resource.

- Forest management: Sound, integrated forest management will be demonstrated and encouraged throughout the province.

About 2,300 firms and individuals are currently registered in the SBFEP and are eligible to compete for timber sales.

Under the SBFEP, timber is sold in two main ways:

- Competitive sales (section 16 of the *Forest Act*): These sales are sold to the highest bidder. A lower limit price, called the upset price, is established and interested parties then tender an additional amount, called the bonus bid. The bidder with the highest bonus bid is awarded the sale. These sales are usually for a term of one or two years.

- Bid proposal sales (section 16.1 of the *Forest Act*): These sales are awarded to the firm which submits the best proposal. Proposals are evaluated to determine the value added by the applicant's manufacturing facility. The sale is normally awarded to the applicant with the best combination of bonus bid and value added. These sales have terms ranging from one to ten years.

Some timber is also sold directly, under section 18 of the *Forest Act*, through a variety of sales that are awarded without competition. Direct sales typically involve small volumes, have short terms and serve emergency situations.

Bid proposal sales are an important aspect of the SBFEP. Through these sales, the government is encouraging the remanufacturing of lumber and the production of specialty products. Expansion of this part

of the forest industry will provide additional employment opportunities and will lead to diversification into new products and markets. As of May 17, 1991, 97 bid proposals, with a total volume of 11.1 million m^3, have been awarded. These proposals involve capital investments of $95 million and are expected to maintain 2,700 jobs and create 1,900 new jobs.

The SBFEP is managed on a self-financing basis through the Small Business Forest Enterprise Account. All revenues from small business timber sales, including upset stumpage, bonus bids, annual rent, scaling fees and registration fees, are credited to the account. All program costs, including timber cruising, road building, basic silviculture, administration and protection, are debited from the account.

Each year, sufficient funds are reserved in the account to offset future reforestation costs. Revenues in excess of current expenditure and reforestation costs are returned to the province's Consolidated Revenue Fund.

Each year, the SBFEP submits a business plan to Treasury Board for approval. The business plan for 1991/92 forecasts revenues of $136 million and expenditures of $86 million, with the following budget:

Administration	$ 16 million
Harvesting	
Sales	9 million
Roads	36 million
Silviculture	23 million
Protection	2 million
Total	$ 86 million

During 1991/92, the ministry expects to award approximately 30 bid proposal sales and 1,500 other sales. A total of approximately 11.1 million m^3 are expected to be sold during the year under the SBFEP.

Silviculture program

The silviculture program sets and monitors standards of reforestation on Crown and regulated private forest lands; reforests certain types of denuded Crown forest land; improves the value and productivity of the forest resources; and, provides tree seed and seedlings.

The silviculture program includes the activities of the Silviculture Branch in Victoria and the silviculture personnel in the regions, districts, three nurseries, nine seed orchards and the province's seed centre.

Forecast expenditure under the silviculture program in 1991/92 is $223 million. The funding for the silviculture program consists of:

Forest Renewal Plan	
Sustainable Environment Fund[1]	$ 171 million
Support	49 million
South Moresby Implementation - Forest Replacement	3 million
Total[2]	$ 223 million

Notes:

1 Includes $24 million for the FRDA II.

2 Not included are $23 million under the SBFEP and $4 million under the Forest Enhancement Program.

The silviculture program consists of four subprograms: basic silviculture, incremental silviculture, nursery and seed operations, and forest health. These are described on the next three pages.

Basic silviculture

Basic silviculture includes all activities that ensure reforestation of recently denuded areas. The basic silviculture subprogram sets standards for restocking Crown and regulated private forest lands with commercially useful trees following current timber harvests, and monitors performance relative to those standards. It also funds and administers restocking, with commercially useful trees, of forest areas denuded by fire, pests and recent timber harvesting. Activities include surveys, site preparation, planting, brushing and spacing.

Responsibility for funding basic silviculture activities was shifted to major licensees and the SBFEP in 1987. Major licensees are required, at their own expense, to restock with commercially useful trees, areas harvested on and after October 1, 1987. They are required by law to follow a prescription and schedule approved by staff under the silviculture program. The ministry's role is to monitor and audit the major licensees' performance.

The basic silviculture subprogram also provides funds for all the remaining basic silviculture requirements on:

- land harvested by major licensees between January 1, 1982 and September 30, 1987,
- land harvested under the SBFEP and other minor tenures up to December 31, 1987, and,
- land denuded by fire and pests.

The subprogram also funds the restocking of the remaining backlog of not-satisfactorily-restocked (NSR) forest land and the brushing of stocked plantations on land harvested prior to January 1, 1982.

Aside from ongoing requirements to audit the performance of major licensees and to restock land denuded by fire and pests, the reforestation activities under the basic silviculture subprogram will be largely completed with the goals shown in the following table:

Goals for Basic Silviculture Funded by the Ministry of Forests

	1991/92	1992/93	1993/94	1994/95	1995/96
			(hectares)		
Surveys	735 000	663 000	576 000	551 000	539 000
Site preparation	51 000	41 000	46 000	32 000	26 000
Planting	87 000	62 000	44 000	34 000	30 000
Brushing	85 000	82 000	73 000	65 000	58 000
Spacing	6 000	6 000	7 000	7 000	10 000
			(number)		
Audits	2 100	4 200	4 200	4 400	4 500

Incremental silviculture

The incremental silviculture subprogram includes activities to improve the value and growth of immature forests. Activities include surveys, spacing, fertilizing and pruning.

The new FRDA II, discussed on page 3, provides funding for two thirds of incremental silviculture activities over the next four years, with the remainder provided by regular provincial funds. Estimated incremental silviculture goals are shown in the table below:

Goals for Incremental Silviculture Funded by the Ministry of Forests

	1991/92	1992/93	1993/94 (hectares)	1994/95	1995/96
Surveys	55 000	85 000	107 000	120 000	127 000
Spacing	26 000	31 000	39 000	43 000	45 000
Fertilizing	3 000	13 000	15 000	17 000	19 000
Pruning	3 000	4 000	6 000	7 000	8 000

Approximately 10 000 additional hectares will receive incremental silviculture treatments funded under the South Moresby Implementation - Forest Replacement account and the Forest Enhancement Program. The South Moresby account was established in 1988 to help offset the timber harvests and jobs lost by the creation of the South Moresby National Park Reserve. The Forest Enhancement Program provides employment and training opportunities. Its goals reflect funding by the Ministry of Social Services and Housing and projects proposed by sponsors outside government.

Nursery and seed operations

The nursery and seed operations subprogram manages a seed centre in Surrey, several seed orchard sites and three nurseries.

All seed for seedlings planted on Crown land is registered and stored at the seed centre. Seed is collected from natural forests and seed orchards designed to produce genetically improved seed. By the year 2000, orchards managed by the ministry and the private sector will supply seed for an estimated 40 million and 80 million seedlings, respectively, for coastal and interior planting.

Seedlings planted on Crown land are carefully selected to ensure suitable species and sufficient genetic variation on each site. Since 1987, the forest industry pays the cost of seed and seedlings required to meet its basic silviculture responsibilities.

The three ministry nurseries provide seedlings for the SBFEP and other ministry needs. The remainder of the seedlings planted in the province are grown in private sector nurseries.

The subprogram also provides extension services for private seed orchards, nurseries and reforestation. Services include testing of cones, seeds and seedlings; coordination of sowing requests; and, technical support for seed orchard and nursery management.

Forest health

The forest health subprogram reduces growth loss and damage in young and mature forests caused by insects, diseases and small mammals. Forest health activities are coordinated with the activities of the integrated resource management, harvesting, small business forest enterprise and protection programs.

Bark beetles and other pests are still damaging forests and rangelands over widespread areas of the province. Control and management efforts will continue in 1991/92, with priority given to the mountain pine beetle. Other efforts include the establishment of disease-free young stands with improved growth rates and wood quality, and the control of small mammals.

Research program

The research program continues to provide the ministry with scientific knowledge, biological insight and improved technology for achieving a greater diversity of forest resource management objectives. The program works in cooperation with many other research agencies, throughout Canada and internationally, to ensure that available knowledge and promising new developments are available in British Columbia.

Much new research is already underway to address important integrated resource management issues, such as old growth, biological diversity, partial cutting alternatives to clear-cutting, and timber harvesting impacts on other resource values. These initiatives will be expanded under the provisions of the Forest Renewal Plan, as outlined on pages 2 and 3. Continued emphasis will be placed on communicating research findings and other technical information in a timely and effective manner.

Recent examples of research program outputs are: a problem analysis on old growth forests, guidelines for minimizing environmental impacts on soils and watersheds, a handbook for deer and elk habitats of coastal forests of southern British Columbia, new partial cutting trials in each forest region, new studies on the silviculture of certain hardwood species (birch, aspen and alder) and improved estimates of managed forest growth and yield.

The program includes the activities of the Forest Science Research Branch in Victoria, and the research personnel at the regional offices, three research stations and a laboratory. Activities include research, communication and extension services.

Forecast expenditure for 1991/92 is $12 million for the regular research program, plus $6 million for research work under the Forest Renewal Plan.

Protection program

The protection program reduces damage to forest and range resources by wildfire. Protection of private property, improvements and human life are especially important in wildland/urban interface areas.

Maintenance of diverse environmental values is also provided through forest protection.

The overall goals are to keep the area burned by wildfire below 69 000 ha and the timber volume lost to wildfire below 2.6 million m^3 annually.

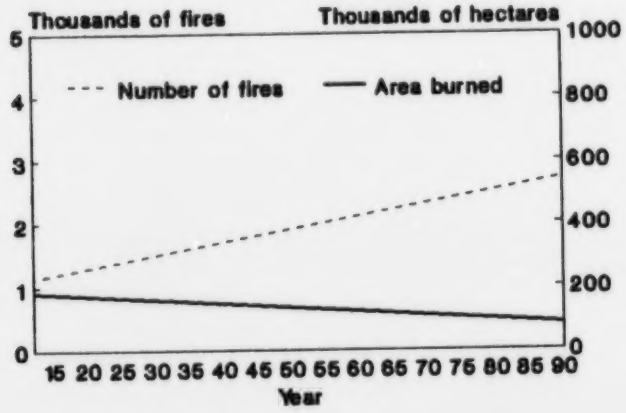
The program includes the activities of the Protection Branch in Victoria, and the protection personnel at the regional and district offices. The program also establishes standards for, and manages, the ministry's aviation and associated support activities to ensure that these are safe and cost-effective.

Aside from the lives saved by this program and the closely linked fire suppression program, the commercial

values protected by these programs are substantial. Housing and other developments in the wildland/urban interface areas are worth more than $15 billion. In addition, the forest industry produces goods worth about $12 billion annually and supports about 250,000 direct and indirect jobs. Without protection from wildfires, many developments in interface areas would be lost and, in parts of the province, as much as 25 to 50 percent of long term timber supplies to the forest industry and associated manufacturers could be lost to wildfires.

The protection and fire suppression programs have been very successful in limiting the area burned by wildfires. Nearly a century of historical data is represented in Graph 4, showing that the annual area burned has decreased by half despite a doubling of the number of fires.

Graph 4: FIRE HISTORY TRENDS
(1912 to 1990)



In response to concern about smoke from wildfires, and from prescribed fires for slash removal and improvement of rangeland and wildlife habitat, the Ministries of Forests and Environment struck the Smoke Management Steering Committee. The function of the committee is to ensure an integrated smoke management policy across British Columbia.

The goal is to manage these sources of air pollution and preserve air quality. For example, slash burning smoke emissions are to be reduced by 30 percent over five years. The Ministries of Forests; Environment; Energy, Mines and Petroleum Resources; Health; Agriculture and Fisheries; Tourism; and Municipal Affairs, Recreation and Culture are participating in this process.

Forecast expenditure under the protection program for 1991/92 is $19 million.

Fire suppression program

The fire suppression program provides fire-fighting services for the control of wildfires. The program is closely linked to, and supported by, the protection program, but is managed and funded separately.

Program expenditure depends on the severity of the fire season. Contracts for air tankers, helicopters and heavy equipment and fire fighter wages are the main expenses.

Recent innovations in the fire suppression program include the use of highly-trained 20-person "unit crews", and the movement of personnel and equipment to high risk areas in anticipation of potential fires. Supporting much of the fire suppression efforts are a province-wide lightning location system, remote automated weather stations, and computer-based fire and aviation management information systems.

Forecast expenditure for 1991/92 is $50 million.

The role of the private sector

Wherever possible, the Ministry of Forests engages the private sector to assist in implementing programs approved by the government. While the role of the private sector may continue to increase, government, through the ministry, will continue to manage and control the province's forest and range resources.

The private sector is directly responsible, under most tenures, for many activities such as constructing access roads and planting trees after timber harvests. The private sector's expenditures on these activities are well above $100 million annually, and are expected to increase as the planting responsibilities assumed since 1987 phase in fully. The Ministry of Forests sets standards for the private sector and monitors its performance.

The private sector also carries out many activities under contract to the Ministry of Forests. Forecast expenditures on contracts during 1991/92 amount to more than $260 million, or over 40 percent of total ministry expenditures. Private sector contractors reforest denuded areas which the ministry is required by law to reforest; provide communications, computing and other services which help the ministry operate efficiently; and, perform a variety of other tasks, such as mapping and research, which help the ministry carry out its mandate. The ministry monitors the performance of its private sector contractors.

Notes on linkages to other reports

Forest and Range Resource Analysis and Ministry of Forests Annual Report

The *Ministry of Forests Act* requires the ministry to publish three reports and lay them before the Legislative Assembly:

- A forest and range resource analysis is required not later than 1979, 1984 and every tenth year after that. These analyses are to describe the conditions, management and potential future uses of the forest and range resources, to enable the Legislative Assembly to determine overall priorities and long-term objectives.

- A forest and range resource program (this report) is to be updated annually, to describe the government's proposed priorities, methods and schedules for management and improvement of the province's forest and range resources.

- An annual report is required to record and evaluate the performance of the ministry in implementing the program set out in the previous year. It describes accomplishments, the money spent and the level of management of the resources entrusted to the ministry.

These three documents provide a continuing public record of the ministry's goals and performance in forest and range management. Their purpose is to promote public awareness and understanding of the management of British Columbia's forests and rangelands.

The Ministry of Forests provides copies of the forest and range resource program free of charge. Copies are

available from:

Public Affairs Branch
Ministry of Forests
595 Pandora Street
Victoria, British Columbia
V8W 3E7

Telephone: 387-5255
FAX: 387-8485

Copies of the 1984 Forest and Range Resource Analysis and the latest annual report are available from:

Crown Publications Inc.
546 Yates Street
Victoria, British Columbia
V8W 1K8

Telephone: 386-4636
FAX: 386-0221

Estimates / Public Accounts

For ease of comparative reading, the program descriptions in this report follow, as closely as possible, the structure of the government's Estimates for the 1991/92 fiscal year and, consequently, also the Pubic Accounts for that year.

The votes, sub-votes and special accounts shown in the Estimates for 1991/92 are linked to the programs, described in this five year program, as follows:

Estimates	Program
Vote 34: Minister's Office	Management Services
Vote 35: Ministry Operations:	
Management Services	Management Services
Harvesting	Harvesting
Research	Research
Forest Protection	Forest Protection
Integrated Resources Management	Integrated Resource Management
Inventory	Inventory
Vote 36: Fire Suppression	Fire Suppression
Vote 37: Forest Renewal	Silviculture
Special Accounts:	
Small Business Forest Enterprise	Small Business Forest Enterprise
South Moresby Implementation	Silviculture

The Forest Renewal Plan is funded through:

- Vote 35 (Management Services, Research and Inventory sub-votes),
- Vote 37 (Silviculture Support sub-vote), and the
- Sustainable Environment Fund (primarily funded by the Forest Renewal sub-vote of Vote 37).

Ministry of Forests organization

As of May 15, 1991, the Ministry of Forests is organized into four divisions, six regional offices, 43 district offices and 19 branches in headquarters.

Reporting to the deputy minister are the four divisions' assistant deputy ministers and the director of the Public Affairs Branch. Reporting to each of the assistant deputy ministers are the following components of each division:

Operations Division:

- Cariboo Region (5 districts)
- Kamloops Region (7 districts)
- Nelson Region (7 districts)
- Prince George Region (8 districts)
- Prince Rupert Region (7 districts)
- Vancouver Region (9 districts)

- Protection Branch
- Timber Harvesting Branch
- Valuation Administration Branch

Forestry Division:

- Forest Science Research Branch
- Integrated Resources Branch
- Inventory Branch
- Range Branch
- Recreation Branch
- Silviculture Branch

Management Services Division:

- Audit Services Branch
- Financial Services Branch
- Human Resources Branch
- Information Systems Branch
- Technical and Administrative Services Branch

Forest Resources Policy Division:

- Economics and Valuation Branch
- Industry Development Branch
- Land Use Policy Branch
- Strategic Planning and Analysis Branch

- Legal Services (Ministry of Attorney General)